

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claim 1 (Currently Amended): A solid state image sensor device comprising:
an image sensing cell array portion including a plurality of unit cells of voltage read-out type, the unit cells being arranged in a matrix form on a semiconductor substrate, the image sensing cell array portion having a photo-sensitive pixel region and an optical black pixel region, the unit cells of the photo-sensitive pixel region for sensing an image, and the unit cells of the optical black pixel region for defining an optical black level;
a selecting circuit ~~for selecting~~ configured to select the unit cells of the image sensing cell array portion in a unit of one horizontal line of the image sensing cell array portion; and
a plurality of vertical signal lines on which signals are read out from the unit cells selected by the selecting circuit, at least two of the vertical signal lines in the optical black pixel regions being directly connected with each other, with no switching elements therebetween.

Claim 2 (Currently Amended): A solid state image sensor device according to claim 1, wherein at least one of the vertical signal lines in the optical black pixel region is excluded from being short-circuited with said at least two vertical signal lines by ~~[[the]]~~ a wiring.

Claim 3 (Currently Amended): A solid state image sensor device according to claim 1, wherein at least one of the vertical signal lines in the optical black pixel region, which is at the side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by ~~[[the]]~~ a wiring.

Claim 4 (Currently Amended): A solid state image sensor device according to claim 1, wherein at least one of the vertical signal lines in the optical black pixel region, which is at the opposite side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by ~~[[the]]~~ a wiring.

Claim 5 (Currently Amended): A solid state image sensor device according to claim 1, wherein at least one of the vertical signal lines in the optical black pixel region, which is at the side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by ~~[[the]]~~ a wiring, and wherein at least one of the vertical signal lines in the optical black pixel region, which is at the opposite side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by ~~[[the]]~~ a wiring.

Claim 6 (Currently Amended): A solid state image sensor device according to claim 1, wherein ~~[[the]]~~ a wiring causes levels of the readout signals of said at least two vertical signal lines to be averaged.

Claim 7 (Currently Amended): A solid state image sensor device comprising:
an image sensing cell array portion including a plurality of unit cells of voltage read-out type, the unit cells being arranged in a matrix form on a semiconductor substrate, the image sensing cell array portion having a photo-sensitive pixel region and a plurality of optical black pixel regions having optical black levels different from each other, the unit cells

of the photo-sensitive pixel region for sensing an image, and the unit cells of the optical black pixel regions for defining optical black levels;

a selecting circuit ~~for selecting~~ configured to select the unit cells of the image sensing cell array portion in a unit of one horizontal line of the image sensing cell array portion; and

a plurality of vertical signal lines on which signals are read out from the unit cells selected by the selecting circuit, at least two of the vertical signal lines in the optical black pixel regions being directly connected with each other, with no switching elements therebetween.

Claim 8 (Currently Amended): A solid state image sensor device according to claim 7, wherein at least one of the vertical signal lines in the optical black pixel regions is excluded from being short-circuited with said plurality of vertical signal lines by ~~[[the]]~~ a wiring.

Claim 9 (Currently Amended): A solid state image sensor device according to claim 7, wherein at least one of the vertical signal lines in the optical black pixel regions, which is at the side of the photo-sensitive pixel region, is excluded from being short-circuited with said plurality of vertical signal lines by ~~[[the]]~~ a wiring.

Claim 10 (Currently Amended): A solid state image sensor device according to claim 7, wherein at least one of the vertical signal lines in the optical black pixel regions, which is at the opposite side of the photo-sensitive pixel region, is excluded from being short-circuited with said plurality of vertical signal lines by ~~[[the]]~~ a wiring.

Claim 11 (Currently Amended): A solid state image sensor device according to claim 7, wherein at least one of the vertical signal lines in the optical black pixel regions, which is at the side of the photo-sensitive pixel region, is excluded from being short-circuited with said plurality of vertical signal lines by ~~[[the]]~~ a wiring, and wherein at least one of the vertical signal lines in the optical black pixel regions, which is at the opposite side of the photo-sensitive pixel region, is excluded from being short-circuited with said plurality of vertical signal lines by ~~[[the]]~~ a wiring.

Claim 12 (Original): A solid state image sensor device according to claim 7, wherein the plurality of optical black pixel regions comprise at least two optical black pixel regions, the unit cells of one of which includes a PN junction diode as a photoelectric conversion element and the unit cells of the other of which includes no PN junction diode.

Claim 13 (Currently Amended): A solid state image sensor device according to claim 7, wherein ~~[[the]]~~ a wiring causes levels of the readout signals of said plurality of vertical signal lines to be averaged.

Claim 14 (Currently Amended): A solid state image sensor device comprising:
an image sensing cell array portion including a plurality of unit cells of voltage read-out type, the unit cells being arranged in a matrix form on a semiconductor substrate, the image sensing cell array portion having a photo-sensitive pixel region, a first optical black pixel region and a second optical black pixel region having an optical black level different from that of the first optical black pixel region, the unit cells of the photo-sensitive pixel

region for sensing an image, and the unit cells of the first and second optical black pixel regions for defining optical black levels;

a selecting circuit ~~for selecting~~ configured to select the unit cells of the image sensing cell array portion in a unit of one horizontal line of the image sensing cell array portion; and

a plurality of vertical signal lines on which signals are read out from the unit cells selected by the selecting circuit, at least two of the vertical signal lines in the optical black pixel regions being directly connected with each other, with no switching elements therebetween.

Claim 15 (Currently Amended): A solid state image sensor device according to claim 14, wherein at least one of the vertical signal lines in the first and second optical black pixel regions is excluded from being short-circuited with said at least two vertical signal lines by ~~[[the]]~~ a wiring.

Claim 16 (Currently Amended): A solid state image sensor device according to claim 14, wherein at least one of the vertical signal lines in the first and second optical black pixel regions, which is at the side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by ~~[[the]]~~ a wiring.

Claim 17 (Currently Amended): A solid state image sensor device according to claim 14, wherein at least one of the vertical signal lines in the first and second optical black pixel regions, which is at the opposite side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by ~~[[the]]~~ a wiring.

Claim 18 (Currently Amended): A solid state image sensor device according to claim 14, wherein at least one of the vertical signal lines in the first and second optical black pixel regions, which is at the side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by the wiring, and wherein at least one of the vertical signal lines in the first and second optical black pixel regions, which is at the opposite side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by ~~[[the]]~~ a wiring.

Claim 19 (Original): A solid state image sensor device according to claim 14, wherein the unit cells of the first optical black pixel region include a PN junction diode as a photoelectric conversion element and the unit cells of the second optical black pixel region include no PN junction diode.

Claim 20 (Currently Amended): A solid state image sensor device according to claim 14, wherein ~~[[the]]~~ a wiring causes levels of the readout signals of said at least two vertical signal lines to be averaged.